

REMARKS

Claims 1, 3-6, 10, 18, 19, 21-24, 28, 34, 36, 37, 41, 42, 45-51 and 57 have been amended. Claims 1-60 are pending in this application. Applicant reserves the right to pursue the original claims and other claims in this application and in other applications.

The Specification stands objected to based on informalities. The Office Action has requested that the application numbers of the related U.S. Patent applications cited on pages 12, 17, 19 and 22 be filled in. Applicant has amended the appropriate paragraphs. Applicant also submits that the co-pending applications listed on pages 12 and 17 are currently pending and that the application listed on pages 19 and 22 has issued as U.S. Patent No. 6,651,122. The objection should be withdrawn in light of these amendments.

Claims 10, 28, 45 and 55 stand objected to based on informalities. The Office Action alleges that the preambles to claims 10, 28 and 45 may not refer to the proper parent claims because claims 10, 28, 45 use the phrase "the group consisting of" and their respective parent claims also use the phrase "the group consisting of" to refer to other elements in the claims. Applicant respectfully points out that the phrase "the group consisting of" is a proper introduction to a Markush group, which claims 10, 28 and 45 are claiming. Applicant also respectfully points out that claims 10, 28 and 45 are claiming different Markush groups than their respective parent claims. In any event, to remove any confusion and to further the prosecution of the application, Applicant has amended claims 10, 28 and 45. The concerns raised in the Office Action regarding claims 10, 28 and 45 have been addressed by the amendments.

The Office Action also states that in claim 55 "said arbitration signals" should be "said arbitration signal." Claim 55 depends from claim 51, which recites an

“arbitration signal” and “another arbitration signal.” As such, there are two arbitration signals in claim 51. Applicant respectfully submits that the phrase “said arbitration signals” in claim 55 is proper. Accordingly, Applicant respectfully requests that the objection be withdrawn and the claims allowed.

Claims 3, 4, 6, 21, 22, 24, 36, 37, 42 and 46-50 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Specifically, the Office Action states that “the group consisting of” in claims 3, 4, 6, 21, 22, 24, 36, 37 and 42 lacks antecedent basis. Although “the group consisting of” is a proper introduction of a Markush group, which claims 3, 4, 6, 21, 22, 24, 36, 37 and 42 are reciting, Applicant has amended claims 3, 4, 6, 21, 22, 24, 36, 37 and 42 solely to avoid any unnecessary confusion and to further the prosecution of the application. The concerns raised in the Office Action regarding claims 3, 4, 6, 21, 22, 24, 36, 37 and 42 have been addressed by the amendments.

In addition, the Office Action states that claims 46-50 lack antecedent basis for “the bus master arbitration request,” “the bus slave arbitration request,” “the bus master transfer in progress state” and “the bus slave transfer in progress state.” Claims 46-50 have been amended. The concerns raised in the Office Action have been addressed by the amendments. Accordingly, Applicant respectfully requests that the rejection be withdrawn and the claims allowed.

Claims 1-15, 18, 34-38, 41-50 and 57-60 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kondo et al, U.S. Patent No. 6,539,444 B1 (hereinafter “Kondo”), in view of Frame et al, U.S. Patent No. 5,349,690 (hereinafter “Frame”). The rejection is respectfully traversed.

Claim 1 recites a “bus arbitration method for a processor based system.” The method includes the steps of “issuing, from one of the first device and the hub device,

an arbitration request on the link bus; determining, at the first device and the hub device, whether control of the link bus can be transferred from a bus master to the device issuing the arbitration request; and if it is determined that control of the link bus can be transferred, transferring control of the link bus from the bus master to the device issuing the arbitration request.” Applicant respectfully submits that the combination of Kondo and Frame fails to teach or suggest the claim 1 invention.

Initially, Applicant notes that according to the Office Action, Kondo does not teach, suggest or disclose “determining, at the first device and the hub device, whether control of the link bus can be transferred to the device issuing the arbitration request; and if it is determined that control of the link bus can be transferred, granting control of the link bus to the device issuing the arbitration request, wherein control of the link bus is granted by the first device and the hub device.” (see Office Action p. 4). Applicants respectfully submit that this is almost all of the limitations recited in claim 1. Apparently, Kondo is being relied upon merely for the teaching of a computer system that uses arbitration and has a hub.

Since Kondo does not teach, suggest or disclose most of the method steps recited in claim 1, the Office Action combines Kondo with Frame. Applicant respectfully submits, however, that Frame and the combination of Kondo and Frame also fails to teach or suggest all of the limitations of claim 1.

Frame does not disclose, teach or suggest a processor system comprising a hub, memory device or a link bus as recited in claim 1. As such, Frame cannot teach or suggest the steps of “determining . . . whether control of the link bus can be transferred” and “transferring control of the link bus.” The Office Action admits that Kondo does not teach these limitations either. Thus, the combination of Kondo and Frame fails to teach or suggest these claim 1 elements.

Moreover, the Frame computer system never determines “whether control of the link bus can be transferred from a bus master to the device issuing the arbitration request.” Similarly, Frame’s computer system does not transfer “control of the link bus from the bus master to the device issuing the arbitration request.” In the Frame system, for example, “enabled devices” seek control of the bus when the bus is idle (i.e., there is no bus master). According to the Frame arbitration scheme, “only enabled nodes can participate in an arbitration for the bus, and once a node wins an arbitration and takes control of the bus 10, the node becomes disabled and cannot participate in an arbitration until all of the other enabled nodes connected to the bus have had an opportunity to use the bus.” Col. 3, lines 14-20 (emphasis added). As such, Frame never deals with the situation of having to transfer control away from an existing bus master. This is because the node that wins arbitration is immediately disabled and removed from the arbitration process. Thus, there is no master when the arbitration occurs. This is different than the claimed invention. As such, Frame and Kondo cannot teach or suggest the steps of “determining, at the first device and the hub device, whether control of the link bus can be transferred from a bus master to the device issuing the arbitration request; and if it is determined that control of the link bus can be transferred, transferring control of the link bus from the bus master to the device issuing the arbitration request.”

In order to establish a prima facie case of obviousness, “the prior art references (or references when combined) must teach or suggest all of the claim limitations.” M.P.E.P. § 2143. Since the combination of Kondo and Frame fails to teach or suggest “all of the claim limitations” of claim 1, claim 1 is allowable over the cited combination.

Claims 2-15 depend from claim 1 and are allowable along with claim 1. Claim 34 recites a processor system comprising a link hub, satellite device and "a link bus connected between said link hub and said satellite device." According to claim 34, "said satellite device and said link hub arbitrate a control of said link bus by . . . determining, at the satellite device and said link hub, whether control of said link bus can be transferred from a bus master to the device issuing the arbitration request, and transferring control of said link bus from the bus master to the device issuing the arbitration request."

As set forth above, the combination of Kondo and Frame fails to teach or suggest these claim elements. As such, claim 34 is allowable over the cited combination. Claims 35-38 and 41-50 depend from claim 34 and are allowable along with claim 34 for at least the reasons set forth above.

Claim 57 recites a processor based system having a processor, first device, second device and "a link bus connected between said first and second devices." According to claim 57 "said first and second devices arbitrate control over said link bus in a decentralized manner and in accordance with said link bus protocol such that control over said link bus is transferred from a bus master to a bus slave when the slave is granted control over said bus."

As set forth above, the combination of Kondo and Frame fails to teach or suggest these claim elements. As such, claim 57 is allowable over the cited combination. Claims 58-60 depend from claim 57 and are allowable along with claim 57 for at least the reasons set forth above. The rejection should be withdrawn and claims 1-15, 18, 34-38, 41-50 and 57-60 allowed.

Furthermore, Applicant respectfully submits that it is improper to combine Kondo with Frame. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found in the references themselves. *In re Fine*, 837 F.2d 1071, 5 USPQ.2d 1596 (Fed. Cir. 1988). Although Kondo “may be capable of being modified to run the way [the applicant’s] apparatus is claimed, there must be a suggestion or motivation in the reference [Kondo] to do so.” *In re Mills*, 916 F.2d 680. There is no suggestion or motivation in any of the references for combining them to arrive at the claimed invention. Frame is not a hub system and Kondo does not relate to a decentralized arbitration scheme. The Office Action is using impermissible hindsight by using the claims of the present invention as a road map to improperly combine the references. See Ex part Clapp, 227 U.S.P.Q. 972, 973 (Bd. App. 1985); M.P.E.P. §2144. This is another reason why the rejection should be withdrawn.

Claims 19-33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kondo in view of Frame and Nguyen et al, U.S. Patent No. 5,502,821 (hereinafter “Nguyen”).

Claim 19 recites a “method of arbitrating control of a link bus in a computer system.” The method includes the steps of “determining, at the satellite device and the hub device, whether control of the link bus can be transferred from a bus master to the device issuing the arbitration request; and if it is determined that control of the link bus can be transferred, transferring control of the link bus from the bus master to the device issuing the arbitration request, wherein control of the link bus is granted by the satellite device and the hub device.” Applicant respectfully submits that the combination of Kondo, Frame and Nguyen fails to disclose the claimed invention.

As set forth above, the combination of Kondo and Frame fails to teach or suggest “determining . . . whether control of the link bus can be transferred from a bus master” and “transferring control of the link bus from the bus master.” Nguyen has been cited merely as teaching a status line and multiplexing of signals. Nguyen, however, fails to teach or suggest “determining . . . whether control of the link bus can be transferred from a bus master” and “transferring control of the link bus from the bus master.” As such, the combination of Kondo, Frame and Nguyen also fails to teach or suggest the claim 19 invention.

Claims 20-33 depend from claim 19 and are allowable along with claim 19 for at least the reasons set forth above. Moreover, for at least the reasons set forth above, Applicant respectfully submits that there is no motivation to combine the references in the manner suggested in the Office Action. The rejection should be withdrawn and claims 19-33 allowed.

Claims 16, 17, 39 and 40 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kondo in view of Frame and Nguyen. The rejections are respectfully traversed.

Claims 16 and 17 depend from claim 1 and are allowable along with claim 1 for at least the reasons set forth above and on their own merits. Claims 39 and 40 depend from claim 34 and are allowable along with claim 34 for at least the reasons set forth above and on their own merits. Moreover, for at least the reasons set forth above, Applicant respectfully submits that there is no motivation to combine the references in the manner suggested in the Office Action. Accordingly, the rejection should be withdrawn and claims 16, 17, 39 and 40 allowed.

Claims 51, 52, 55 and 56 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kondo in view of Nguyen. The rejection is respectfully traversed.

Claim 51 recites a processor based system having a processor, link hub connected to said processor by a first bus, a satellite device and "a link bus connected between said link hub and said satellite device." According to claim 51, "said satellite device multiplexes an arbitration signal on said link bus status line in accordance with said link bus protocol to become a master of said link bus during transmissions to said link hub and said link hub multiplexes another arbitration signal on said link bus status line in accordance with said link bus protocol to become a master of said link bus during transmissions to said satellite device, wherein control of said link bus is transferred from the master to a slave device." Applicant respectfully submits that the combination of Kondo and Nguyen fails to teach or suggest the claimed invention.

As set forth above, neither Kondo or Nguyen disclose, teach or suggest transferring control of the link bus from a bus master device. As such, the combination of Kondo and Nguyen cannot render claim 51 obvious. Claims 52, 55 and 56 depend from claim 51 and are allowable along with claim 51 for at least the reasons set forth above and on their own merits. Moreover, for at least the reasons set forth above, Applicant respectfully submits that there is no motivation to combine the references in the manner suggested in the Office Action. The rejection should be withdrawn and claims 51, 52, 55 and 56 allowed.

Claims 53 and 54 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kondo in view of Nguyen and Singh et al, U.S. Patent No. 6,609,171 (hereinafter "Singh"). The rejection is respectfully traversed.

Claims 53 and 54 depend from claim 51 and thus, recite "wherein control of said link bus is transferred from the master to a slave device." As set forth above, the combination of Kondo and Nguyen fails to teach or suggest this claim limitation. Singh has been cited as teaching a multi-pumped bus. Singh, however, does not teach or suggest "wherein control of said link bus is transferred from the master to a slave device." As such, the combination of Kondo, Nguyen and Singh fails to teach or suggest the elements of claims 53 and 54. Moreover, for at least the reasons set forth above, Applicant respectfully submits that there is no motivation to combine the references in the manner suggested in the Office Action. The rejection should be withdrawn and claims 53 and 54 allowed.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejections of the claims and to pass this application to issue.

Dated: 12/19/03

Respectfully submitted,

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